THE GALACTIC EMPIRE

A DATABASE DESIGN PROPOSAL

BY

TOM GONZALEZ

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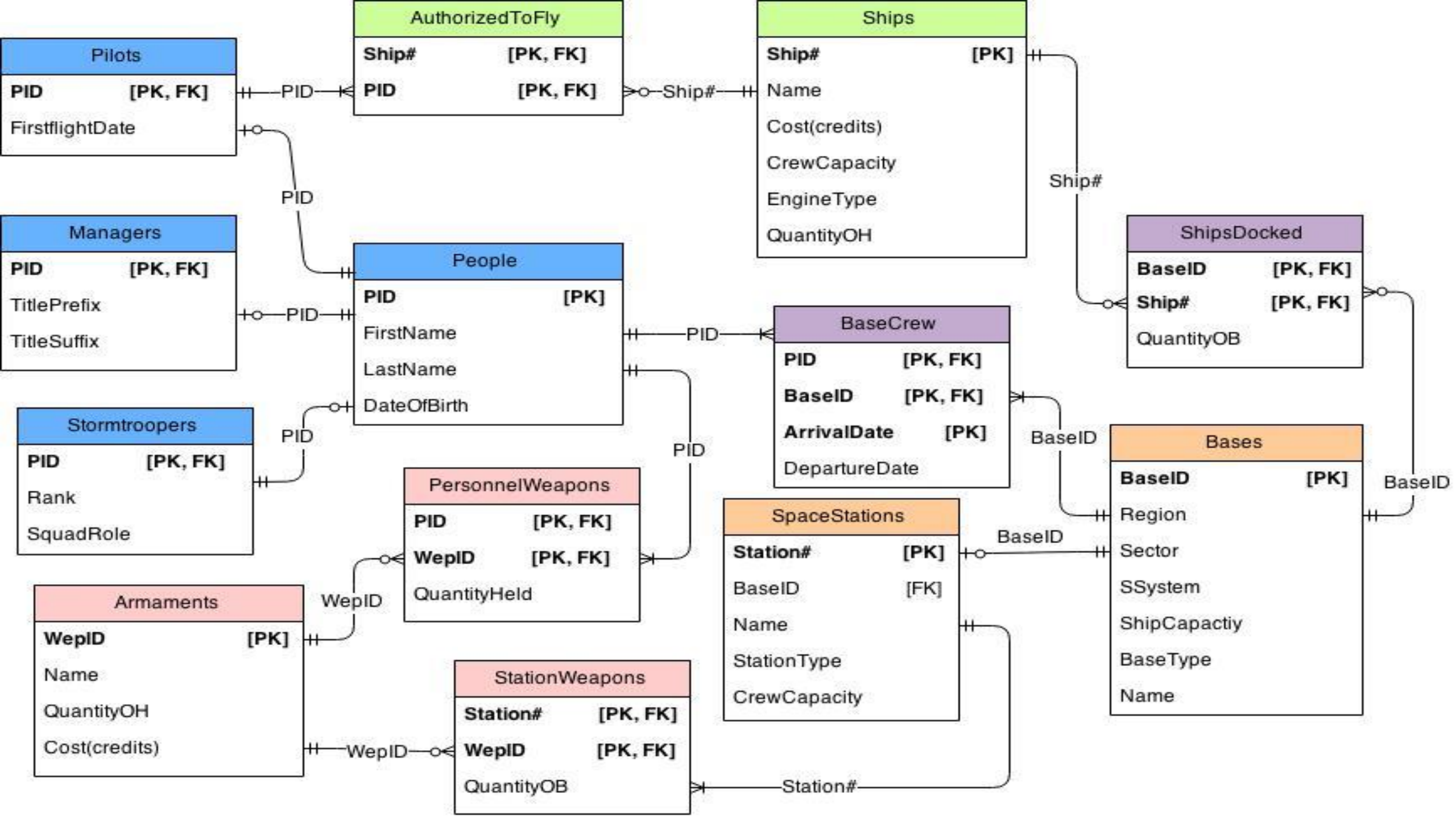
EXECUTIVE SUMMARY

This piece of writing presents a basic outline of the structure and entities involved in the implementation of a database system for the Galactic Empire. The purpose of this database is to enable to the tracking of equipment, that is, be able to find how much of what is where (and depending on the item, who has it). This database will allow the Galactic Empire to reduce its inventory costs by allowing it to track its items with greater accuracy. This database also is intended to allow for the tracking of employees meaning that an administrator should be able to determine an employees location using this database.


AuthorizedToFly
Ship# [PK, FK]
PID [PK, FK]
Pilots
PID [PK, FK]
FirstflightDate
PID
Ship#
Ships
Ship# [PK]
Name
Cost(credits)
CrewCapacity
EngineType
QuantityOH
Ship#
PID
Managers
PID [PK, FK]
TitlePrefix
TitleSuffix
PID
People
PID [PK]
FirstName
LastName
DateOfBirth
PID
BaseCrew
PID [PK, FK]
BaseID [PK, FK]
ArrivalDate [PK]
DepartureDate
BaseID
ShipsDocked
BaseID [PK, FK]
Ship# [PK, FK]
QuantityOB
Stormtroopers
PID [PK, FK]
Rank
SquadRole
PID
PID
PersonnelWeapons
PID [PK, FK]
WepID [PK, FK]
QuantityHeld
Bases
BaseID [PK]
Region
Sector
SSystem
ShipCapactiy
BaseType
Name
BaseID
BaseID
SpaceStations
Station# [PK]
BaseID [FK]
Name
StationType
CrewCapacity
WepID
Armaments
WepID [PK]
Name
QuantityOH
Cost(credits)
WepID
StationWeapons
Station# [PK, FK]
WepID [PK, FK]
QuantityOB
Station#

PEOPLE LISTS ALL PEOPLE AND BASIC QUALITIES

```
CREATE TABLE people (
  pid                 char(6) not null unique,
  firstname           text not null,
  lastname            text not null,
  DateOfBirth         date not null,
 primary key(pid)
);
```

Functional Dependencies

pid -> firstname, lastname, DateOfBirth

	pid character(6)	firstname text	lastname text	dateofbirth date
1	p00001	Anakin	Skywalker	05/25/1977
2	p00002	Anson	Trask	01/08/1983
3	p00003	Boba	Fett	08/09/1991
4	p00004	Sheev	Palpatine	05/25/1977
5	p00005	Cassio	Tagge	07/15/1980
6	p00006	Trech	Molock	03/23/1974
7	p00007	Cassio	Tagge	07/15/1973
8	p00008	William	Touno	05/12/1969
9	p00009	Trel	Skutu	11/02/1989
10	p00010	Biggs	Darklighter	11/17/1970
11	p00011	Tycho	Celchu	03/09/1971
12	p00012	Maarek	Stele	10/04/1970
13	p00013	Juno	Eclipse	06/30/1972
14	p00014	CC	2224	11/17/1970
15	p00015	CT	7567	01/01/1971
16	p00016	CT	3110	01/01/1971
17	p00017	CT	3002	01/01/1971
18	p00018	Ran	Harkas	07/17/1981

STORMTROOPERS LISTS ALL STORMTROOPERS, THEIR RANK AND SQUAD ROLE

```
CREATE TABLE stormtroopers (
    pid          char(6) not null unique references  people(pid),
    rank         text not null,
    squadrole    text not null,
  primary key(pid)
);
```

Functional Dependencies

pid -> rank, squadrole

	pid character(6)	rank text	squadrole text
1	p00002	corporal	leader
2	p00014	commander	tactician
3	p00015	commander	engineer
4	p00016	Private1	sharpshooter
5	p00017	Private1	grenadier
6	p00018	sergeant	rifleman

PILOTS LISTS ALL PILOTS THE DATE OF THEIR FIRST FLIGHT, AND THEIR DESIGNATED SHIP TYPE.

```
CREATE TABLE pilots (
    pid          char(6) not null unique references people(pid),
    firstflight  date not null,
  primary key(pid)
);
```

Functional Dependencies

pid -> firstflight

	pid character(6)	firstflight date
1	p00007	09/03/1995
2	p00009	04/26/2009
3	p00010	12/25/1989
4	p00011	02/14/1994
5	p00012	03/01/2000
6	p00013	06/30/1992

Managers lists all managers and their official titles

```
CREATE TABLE managers (
    pid                 char(6) not null unique references people(pid),
    TitlePrefix         text not null,
    TitleSuffix         text not null,
  primary key(pid)
);
```

Functional Dependencies

pid -> TitlePrefix, TitleSuffix

	pid character(6)	titleprefix text	titlesuffix text
1	p00001	Darth	Vader
2	p00003	Bounty	Hunter
3	p00004	Galactic	Emperor
4	p00005	Imperial	General
5	p00006	Imperial	General
6	p00008	Imperial	General

BASES LISTS ALL IMPERIAL BASES, THE GALACTIC ADDRESS OF EACH BASE (BROKEN DOWN BY REGION, SECTOR AND SOLAR SYSTEM) AND HOW MANY SHIPS EACH BASE CAN HOLD.

```
CREATE TABLE Bases (
 BaseID              char(5) not null unique,
 Name                text not null,
 Region              text not null,
 Sector              text not null,
 SSystem             text not null,
 BaseLocal           text not null,
 ShipCapacity            integer not null,
primary key(BaseID)
);
```

Functional Dependencies

BaseID -> Region, Sector, Ssystem, ShipCapacity

	baseid character(5)	name text	region text	sector text	ssystem text	baselocal text	shipcapacity integer
1	B0001	Prakith	Deep Core	Sector 5	Prakith	Planet	20
2	B0002	Adim	Inner Rim	Adari Sector	Adim	Planet	100
3	B0003	Garos IV	Mid Rim	Msst Sector	Garos IV	Planet	225
4	B0004	Jerne	Outer Rim Territories	Kanz Sector	Jerne	Planet	30
5	B0005	Black Fifteen	Galactic Core	Farlax Sector	Nzoth	SpaceStation	125
6	B0006	Coruscant	Galactic Core	Corusca Sector	Coruscant	Planet	75
7	B0007	Grimm	Expansion Region	Brak Sector	Genesia	Moon	20
8	B0008	The Death Star	Outer Rim Territories	Atrivis Sector	Horuz	SpaceStation	20
9	B0009	Endor	Outer Rim Territories	Moddell Sector	Endor	Moon	40
10	B0010	Hoth	Outer Rim Territories	Anoat Sector	Hoth	Planet	50

SpaceStations lists all spacestations, their name, their type, crew capacity and baseid.

```
CREATE TABLE SpaceStations (
    StationNum                  char(5) not null unique,
    StationType                 text not null,
    CrewCapacity                integer not null,
    BaseID                      char(5) not null unique references Bases(BaseID),
  primary key(StationNum),
  foreign key(BaseID) references Bases(BaseID)
);
```

Functional Dependencies

StationNum -> StationType, CrewCapacity, BaseID

	stationnum character(5)	stationtype text	crewcapacity integer	baseid character(5)
1	00015	Repair Yard	200	B0005
2	10000	Battle Station	12000	B0008

SHIPS LISTS ALL SHIPS, THEIR NAME AND COST IN CREDITS

```
CREATE TABLE Ships (
    ShipNum                 char(5) not null unique,
    ShipName                text not null,
    costCREDITS             integer not null,
  primary key(ShipNum)
);
```

Functional Dependencies

ShipNum -> ShipName, costCREDITS, CrewCapacity, EngineType, QuantityOH

	shipnum character(5)	shipname text	costcredits integer	crewcapacity integer	enginetype text	quantityoh integer
1	s0001	TIE/LN starfighter	60000	2	SFS P-s4 twin ion	212
2	s0002	TIE/SA bomber	65000	1	SFS P-s4 twin ion	141
3	s0003	TIE/IN interceptor	72000	1	SFS P-s5.6 twin ion	71
4	s0004	TIE/X1 advanced	90000	1	SFS P-s5.6 twin ion	70
5	s0005	Scimitar assualt bomber	71500	2	Single SFS P-s4 ion	35
6	s0006	Neutralizer-class bomber	83000	1	single E-16/x ion	35
7	s0007	TIE/D automated fighter	170000	0	SFS P-s4 twin ion	35
8	s0008	Starhunter	100000	1	SFS P-s7.2 twin ion	35

QUALIFIEDTOFLY LISTS EACH SHIP THAT EACH PILOT IS QUALIFIED TO FLY

```
CREATE TABLE QualifiedToFly (
 pid                          char(6) not null references people(pid),
 ShipNum                      char(5) not null references Ships(ShipNum),
 primary key(pid, ShipNum)
);
```

Functional Dependencies

(pid, ShipNum) -> NA

SHIPSDOCKED LISTS ALL DIFFERENT SHIPS, THE BASES THEY'RE DOCKED AT AND HOW MANY SHIPS ARE DOCKED THERE

```
CREATE TABLE ShipsDocked (
   ShipNum                    char(5) not null references Ships(ShipNum),
   BaseID                     char(5) not null references Bases(BaseID),
   QuantityOB                 integer not null,
  primary key(BaseID,ShipNum)
);
```

Functional Dependencies

(BaseID, ShipNum) -> QuantityOB

	pid character(6)	shipnum character(5)
1	p00007	s0001
2	p00007	s0003
3	p00007	s0004
4	p00007	s0008
5	p00009	s0001
6	p00009	s0002
7	p00009	s0005
8	p00010	s0001
9	p00010	s0003
10	p00010	s0004
11	p00010	s0008
12	p00011	s0001
13	p00011	s0002
14	p00011	s0006
15	p00011	s0007
16	p00012	s0001
17	p00012	s0002
18	p00012	s0006
19	p00012	s0007
20	p00013	s0001
21	p00013	s0002
22	p00013	s0003
23	p00013	s0004
24	p00013	s0005
25	p00013	s0006

SAMPLE DATA ON FOLLOWING PAGE

	shipnum character(5)	baseid character(5)	quantityob integer
1	s0001	B0001	12
2	s0002	B0001	4
3	s0003	B0001	2
4	s0004	B0001	0
5	s0005	B0001	0
6	s0006	B0001	0
7	s0007	B0001	0
8	s0008	B0001	0
9	s0001	B0002	50
10	s0002	B0002	18
11	s0003	B0002	9
12	s0004	B0002	8
13	s0005	B0002	6
14	s0006	B0002	6
15	s0007	B0002	2
16	s0008	B0002	1
17	s0001	B0003	80
18	s0002	B0003	40
19	s0003	B0003	20
20	s0004	B0003	20
21	s0005	B0003	8
22	s0006	B0003	8
23	s0007	B0003	10
24	s0008	B0003	5
25	s0001	B0004	15
26	s0002	B0004	5
27	s0003	B0004	4
28	s0004	B0004	0
29	s0005	B0004	0
30	s0006	B0004	0
31	s0007	B0004	0
32	s0008	B0004	2
33	s0001	B0005	20
34	s0002	B0005	30
35	s0003	B0005	5
36	s0004	B0005	22
37	s0005	B0005	4
38	s0006	B0005	6
39	s0007	B0005	8
40	s0008	B0005	0

	shipnum character(5)	baseid character(5)	quantityob integer
41	s0001	B0006	16
42	s0002	B0006	11
43	s0003	B0006	20
44	s0004	B0006	11
45	s0005	B0006	5
46	s0006	B0006	3
47	s0007	B0006	3
48	s0008	B0006	5
49	s0001	B0007	4
50	s0002	B0007	9
51	s0003	B0007	2
52	s0004	B0007	0
53	s0005	B0007	0
54	s0006	B0007	0
55	s0007	B0007	0
56	s0008	B0007	5
57	s0001	B0008	2
58	s0002	B0008	3
59	s0003	B0008	0
60	s0004	B0008	2
61	s0005	B0008	4
62	s0006	B0008	3
63	s0007	B0008	2
64	s0008	B0008	4
65	s0001	B0009	3
66	s0002	B0009	5
67	s0003	B0009	4
68	s0004	B0009	5
69	s0005	B0009	6
70	s0006	B0009	8
71	s0007	B0009	7
72	s0008	B0009	2
73	s0001	B0010	10
74	s0002	B0010	16
75	s0003	B0010	5
76	s0004	B0010	2
77	s0005	B0010	2
78	s0006	B0010	1
79	s0007	B0010	3
80	s0008	B0010	11

BaseCrew lists which people are on which base

```
CREATE TABLE BaseCrew (
 pid                    char(6) not null references people(pid),
 BaseID                 char(5) not null references Bases(BaseID),
 ArrivalDate            date not null,
 DepartureDate          date,
primary key(pid,BaseID, ArrivalDate)
);
```

Functional Dependencies

(pid, BaseID, ArrivalDate) -> DepartureDate

	pid character(6)	baseid character(5)	arrivaldate date	departuredate date
1	p00001	B0008	10/31/2001	
2	p00002	B0010	06/17/2000	
3	p00003	B0009	05/05/2003	04/23/2004
4	p00003	B0008	04/23/2004	
5	p00004	B0008	10/31/2001	
6	p00005	B0005	01/01/1999	11/03/2005
7	p00005	B0001	11/10/2005	
8	p00006	B0004	08/09/1994	07/10/2010
9	p00006	B0008	07/17/2010	
10	p00007	B0007	05/01/1995	05/31/2000
11	p00007	B0001	06/03/2000	
12	p00008	B0001	05/04/1989	
13	p00009	B0002	09/03/1995	
14	p00010	B0009	12/12/2002	
15	p00011	B0003	12/31/1990	
16	p00012	B0002	04/04/1988	01/01/2003
17	p00012	B0003	01/02/2003	
18	p00013	B0004	10/04/1989	
19	p00014	B0008	09/01/1988	
20	p00015	B0008	09/01/1989	
21	p00016	B0006	09/04/1989	
22	p00017	B0008	09/01/1989	
23	p00018	B0010	02/13/1999	

ARMAMENTS LISTS WEAPONS, WEAPON NAME, QUANTITY ON HAND, AND COST IN CREDITS

```
CREATE TABLE Armaments (
    WepID                   char(4) not null unique,
    WName                   text not null,
    QuantityOH              integer not null,
    CostCredits             integer not null,
  primary key(WepID)
);
```

Functional Dependencies

WepID -> WName, QuantityOH, CostCredits

	wepid character(4)	wname text	quantityoh integer	costcredits integer
1	w001	E-11 blaster rifle	100	1000
2	w002	SE-14r repeating blaster	100	400
3	w003	DLT-19 heavy blaster rifle	40	2000
4	w004	E-11s sniper rifle	20	1600
5	w005	DLT-20a blaster rifle	15	1300
6	w006	T-21 light repeating blaster	10	2000
7	w007	L-s1 laser cannon	100	10000
8	w008	Taim&Bak XX-9 heavy turbolasers	120	5000
9	w009	Borstel NK-7 ion cannon	120	1000
10	w010	interplanatary laser XS-1	1	5000000

PERSONNELWEAPONS LISTS WEAPONS, WHO HAS WHICH WEAPONS AND HOW MANY ARE THEY HOLDING

```
CREATE TABLE PersonnelWeapons (
    pid                 char(6) not null references people(pid),
    WepID               char(4) not null references Armaments (WepID),
    QuantityHeld        integer not null,
 primary key(pid, WepID)
);
```

Functional Dependencies

(pid, WepID) -> QuantityHeld

	pid character(6)	wepid character(4)	quantityheld integer
1	p00002	w001	1
2	p00002	w002	1
3	p00003	w001	1
4	p00003	w002	2
5	p00003	w006	1
6	p00005	w002	1
7	p00006	w002	1
8	p00007	w001	1
9	p00007	w002	1
10	p00008	w002	1
11	p00009	w002	1
12	p00010	w002	1
13	p00011	w002	1
14	p00012	w002	1
15	p00013	w002	1
16	p00014	w003	1
17	p00014	w002	1
18	p00015	w005	1
19	p00015	w001	1
20	p00015	w002	1
21	p00016	w004	1
22	p00016	w002	1
23	p00017	w003	1
24	p00017	w002	1
25	p00018	w005	1
26	p00018	w002	1

StationWeapons lists weapons, which station they are on, and how many are on board

```
CREATE TABLE StationWeapons (
    StationNum              char(5) not null references SpaceStations(StationNum),
    WepID                   char(4) not null references Armaments (WepID),
    QuantityOnBoard         integer not null,
  primary key(StationNum, WepID)
);
```

	stationnum character(5)	wepid character(4)	quantityonboard integer
1	00015	w007	60
2	00015	w008	40
3	00015	w009	50
4	10000	w007	40
5	10000	w008	80
6	10000	w009	70
7	10000	w010	1

VIEW PERSONNELLOCATION LISTS NAMES AND GALACTIC ADDRESS OF EACH PERSON

```
CREATE VIEW PersonnelLocation AS
    SELECT firstname, lastname, name, region, ssystem, sector
    FROM people, BaseCrew, Bases
    WHERE people.pid = BaseCrew.pid
    AND BaseCrew.BaseID = Bases.BaseID
    AND BaseCrew.departuredate is NULL
    ORDER BY region;
```

	firstname text	lastname text	name text	region text	ssystem text	sector text
1	Cassio	Tagge	Prakith	Deep Core	Prakith	Sector 5
2	William	Touno	Prakith	Deep Core	Prakith	Sector 5
3	Cassio	Tagge	Prakith	Deep Core	Prakith	Sector 5
4	CT	3110	Coruscant	Galactic Core	Coruscant	Corusca Sector
5	Trel	Skutu	Adim	Inner Rim	Adim	Adari Sector
6	Maarek	Stele	Garos IV	Mid Rim	Garos IV	Msst Sector
7	Tycho	Celchu	Garos IV	Mid Rim	Garos IV	Msst Sector
8	CC	2224	The Death Star	Outer Rim Territories	Horuz	Atrivis Sector
9	CT	7567	The Death Star	Outer Rim Territories	Horuz	Atrivis Sector
10	CT	3002	The Death Star	Outer Rim Territories	Horuz	Atrivis Sector
11	Anakin	Skywalker	The Death Star	Outer Rim Territories	Horuz	Atrivis Sector
12	Ran	Harkas	Hoth	Outer Rim Territories	Hoth	Anoat Sector
13	Anson	Trask	Hoth	Outer Rim Territories	Hoth	Anoat Sector
14	Boba	Fett	The Death Star	Outer Rim Territories	Horuz	Atrivis Sector
15	Sheev	Palpatine	The Death Star	Outer Rim Territories	Horuz	Atrivis Sector
16	Trech	Molock	The Death Star	Outer Rim Territories	Horuz	Atrivis Sector
17	Biggs	Darklighter	Endor	Outer Rim Territories	Endor	Moddell Sector
18	Juno	Eclipse	Jerne	Outer Rim Territories	Jerne	Kanz Sector

VIEW PERSONNELWEAPONSINVENTORY LISTS WEAPON NAMES AND INVENTORY QUANTITY OF EACH WEAPON

```
CREATE VIEW PersonelIWeaponsInventory AS
    SELECT Wname, QuantityOH - sum(PersonnelWeapons.quantityheld) as InStock
    FROM Armaments, PersonnelWeapons
    WHERE Armaments.WepID = PersonnelWeapons.WepID
    GROUP BY armaments.Wname, QuantityOH, Armaments.WepID
    ORDER BY Armaments.WepID;
```

	wname text	instock bigint
1	E-11 blaster rifle	96
2	SE-14r repeating blaster	83
3	DLT-19 heavy blaster rifle	38
4	E-11s sniper rifle	19
5	DLT-20a blaster rifle	13
6	T-21 light repeating blaster	9

VIEW WeaponTracker lists people's names, the name of the weapon and how many they have

```
CREATE VIEW WeaponTracker AS
    SELECT firstname, lastname, WName, QuantityHeld
    FROM people
    INNER JOIN PersonnelWeapons
    ON people.pid = PersonnelWeapons.pid
    INNER JOIN Armaments
    ON PersonnelWeapons.WepID = Armaments.WepID;
```

	firstname text	lastname text	wname text	quantityheld integer
1	Anson	Trask	E-11 blaster rifle	1
2	Anson	Trask	SE-14r repeating blaster	1
3	Boba	Fett	E-11 blaster rifle	1
4	Boba	Fett	SE-14r repeating blaster	2
5	Boba	Fett	T-21 light repeating blaster	1
6	Cassio	Tagge	SE-14r repeating blaster	1
7	Trech	Molock	SE-14r repeating blaster	1
8	Cassio	Tagge	E-11 blaster rifle	1
9	Cassio	Tagge	SE-14r repeating blaster	1
10	William	Touno	SE-14r repeating blaster	1
11	Trel	Skutu	SE-14r repeating blaster	1
12	Biggs	Darklighter	SE-14r repeating blaster	1
13	Tycho	Celchu	SE-14r repeating blaster	1
14	Maarek	Stele	SE-14r repeating blaster	1
15	Juno	Eclipse	SE-14r repeating blaster	1
16	CC	2224	DLT-19 heavy blaster rifle	1
17	CC	2224	SE-14r repeating blaster	1
18	CT	7567	DLT-20a blaster rifle	1
19	CT	7567	E-11 blaster rifle	1
20	CT	7567	SE-14r repeating blaster	1
21	CT	3110	E-11s sniper rifle	1
22	CT	3110	SE-14r repeating blaster	1
23	CT	3002	DLT-19 heavy blaster rifle	1
24	CT	3002	SE-14r repeating blaster	1
25	Ran	Harkas	DLT-20a blaster rifle	1
26	Ran	Harkas	SE-14r repeating blaster	1

Reports Interesting Queries – queries that exemplify the potential utility of databases.

1. Query to return the number of stormtroopers within the same sector

```
SELECT sector, count(s.pid)
FROM stormtroopers s
INNER JOIN BaseCrew bc
ON s.pid = bc.pid
INNER JOIN bases b
ON bc.baseid = b.baseid
GROUP BY sector
```

	sector text	count bigint
1	Atrivis Sector	3
2	Anoat Sector	2
3	Corusca Sector	1

2. Query to return the number of each weapon held by stormtroopers

```
SELECT Wname, count(s.pid)
FROM PersonnelWeapons PW
INNER JOIN Armaments A
ON A.WepID = PW.WepID
INNER JOIN stormtroopers s
ON s.pid = PW.pid
group by a.wname
```

	wname text	count bigint
1	DLT-20a blaster rifle	2
2	SE-14r repeating blaster	6
3	DLT-19 heavy blaster rifle	2
4	E-11 blaster rifle	2
5	E-11s sniper rifle	1

3. Query to return total cost of ships docked (in credits)

```
SELECT sum(costCREDITS*QuantityOB)
from Ships, ShipsDocked
where Ships.ShipNum = ShipsDocked.ShipNum
```

	sum bigint
1	48154500

4. Query to return % of pilots who have been flying for more than 20 years

```
SELECT TRUNC (
        CAST(
            ( select count(pilots.pid)
              from people, pilots
              where people.pid = pilots.pid
              and (date_part('year', age(firstflight)))>20
             )as decimal
            )
            /
           ( select count(pilots.pid)
             from pilots
             )
          *100
        ) as Percent_Over20
```

	percent_over20 numeric
1	50

Stored Procedures

1. Function gives stormtroopers who are riflemen one EF-11 Blaster and one SE14-r repeating blaster

```
CREATE OR REPLACE FUNCTION add_PersonnelWeapons() RETURNS trigger AS
    $BODY$
        BEGIN
            IF NEW.squadrole = 'rifleman' THEN
                INSERT INTO PersonnelWeapons (pid, WepID, QuantityHeld)
                VALUES (NEW.pid, 'w001', 1);
                INSERT INTO PersonnelWeapons (pid, WepID, QuantityHeld)
                VALUES (NEW.pid, 'w002', 1);
            END IF;
        RETURN NEW;
        END;
    $BODY$
LANGUAGE plpgsql;
```

SAMPLE DATA FOR THIS PROCEDURE WILL BE PAIRED WITH THE SAMPLE DATA FOR THE TRIGGER THAT ACTIVATES IT IN THE FOLLOWING SECTION

Stored Procedures

2. Function returns galactic address given a BaseID

```
CREATE OR REPLACE FUNCTION BaseLocation (IN BaseID varchar(5))
RETURNS TABLE ("region" text,"sector" text,"ssystem" text, "name" text) AS
$BODY$
        BEGIN
                RETURN QUERY SELECT Bases.region as region, Bases.sector as sector,
                                    Bases.ssystem as ssystem, Bases.name as name
                                FROM Bases
                                WHERE Bases.BaseID = BaseLocation.BaseID;
        END;
$BODY$
LANGUAGE plpgsql;
```

```
select BaseLocation('B0001')
```

	baselocation record
1	("Deep Core","Sector 5",Prakith,Prakith)

TRIGGERS – CALL FUNCTIONS UPON THE OCCURRENCE OF A SPECIFIED ACTIVITY

1. Trigger

```
CREATE TRIGGER add_PersonnelWeapons
AFTER INSERT ON Stormtroopers
FOR EACH ROW
EXECUTE PROCEDURE add_PersonnelWeapons();
```

```
INSERT INTO people(pid, firstname, lastname, DateOfBirth)
VALUES ('p00019', 'Alan', 'Labouseur', '1970-07-15');

INSERT INTO stormtroopers(pid, rank, squadrole)
VALUES ('p00019', 'Private1', 'rifleman');
```

TRIGGERS

1. PersonnelWeapons Before Insert

	pid character(6)	wepid character(4)	quantityheld integer
1	p00002	w001	1
2	p00002	w002	1
3	p00003	w001	1
4	p00003	w002	2
5	p00003	w006	1
6	p00005	w002	1
7	p00006	w002	1
8	p00007	w001	1
9	p00007	w002	1
10	p00008	w002	1
11	p00009	w002	1
12	p00010	w002	1
13	p00011	w002	1
14	p00012	w002	1
15	p00013	w002	1
16	p00014	w003	1
17	p00014	w002	1
18	p00015	w005	1
19	p00015	w001	1
20	p00015	w002	1
21	p00016	w004	1
22	p00016	w002	1
23	p00017	w003	1
24	p00017	w002	1
25	p00018	w005	1
26	p00018	w002	1

1. PersonnelWeapons After Insert

	pid character(6)	wepid character(4)	quantityheld integer
1	p00002	w001	1
2	p00002	w002	1
3	p00003	w001	1
4	p00003	w002	2
5	p00003	w006	1
6	p00005	w002	1
7	p00006	w002	1
8	p00007	w001	1
9	p00007	w002	1
10	p00008	w002	1
11	p00009	w002	1
12	p00010	w002	1
13	p00011	w002	1
14	p00012	w002	1
15	p00013	w002	1
16	p00014	w003	1
17	p00014	w002	1
18	p00015	w005	1
19	p00015	w001	1
20	p00015	w002	1
21	p00016	w004	1
22	p00016	w002	1
23	p00017	w003	1
24	p00017	w002	1
25	p00018	w005	1
26	p00018	w002	1
27	p00019	w001	1
28	p00019	w002	1

Security

There are numerous potential users of this database but the current primary users are armory staff and managers. Managers are considered administrators and allowed to manipulate all while armory clerks are limited.

Admin

```
CREATE ROLE admin;
GRANT ALL ON ALL TABLES
IN SCHEMA PUBLIC
TO admin;
```

Armory Clerks

```
CREATE ROLE Armory;
GRANT SELECT ON ALL TABLES
IN SCHEMA PUBLIC
TO Armory;
GRANT INSERT ON Armaments
TO Armory;
GRANT UPDATE ON Armaments, PersonnelWeapons, StationWeapons
TO Armory;
```

NOTES-ISSUES-FUTURE PLANS

If I were to actually create a database that fully and accurately represented the equipment and personnel of the Galactic Empire according to various sources (*Star Wars* films, books, and Wikki) it would have taken an insurmountable amount of time. Even with the limited range of sample data I used it took me a great amount of time to insert all the data since I wanted to ensure a certain level of authenticity I gathered the majority of my data entries by searching the website: http://starwars.wikia.com. In the future I would like to be able to add a method of tracking weapon requirements for ships as well as I would like to add other vehicles and more tactically relevant data for the ongoing fight against the rebel forces.

In my next round of editing I also plan to include check constraints to ensure that my total number of ships at any give base is =< its ship capacity and that the total number of ships on bases is <= the total amount of ships on hand. I would also employ similar constraints on my armaments, PersonnelWeapons, and StationWeapons tables (making sure that the number of weapons held or on board are <= the quantity on-hand).

At this point in time I cannot Identify any particular errors although, there are most likely some mistakes. Along with my aforementioned additions these potential issues would also be remedied upon identification in the future.